13 SEP 1965

[redacted] 25X1C

Dear Ken,

In response to your recent request, ORR is able to supply the following information on Soviet imports of gold-plated tungsten wire from Sweden.

About a year ago, we conducted a study of the significance of the large quantity of small diameter (6-10 micron) gold-plated tungsten wire being sold to the USSR by the Swedish firm Lumalampen. We found no evidence of the use of such wire in the US or in Western Europe other than for the manufacture of grid structures for electron tubes. Moreover, it appears that only special classes of tubes would use grid wire of diameters less than 10-15 microns. Available information on Soviet practice in electron tube production leads to the same general conclusions with respect to the USSR. For further details on Soviet and Western practice, we refer you to the following sources:

Elektrovakuumnyye i Poluprovodnikovyye Pribory', G. A. Tyagunov, (Moscow, 1962)

Elektronnyye Pribory', M. S. Kaufman and G. M. Yankin, (Moscow, 1960)

Raschet i Konstruirovanniye Elektronnikh Lamp, V. M. Tsarev, (Moscow, 1961)

Ericsson Review, No. 3, 1958, "New Electron Tubes for Wide-Band Amplifiers", (Reprint No. 1180), attached.

The importance of such small diameter grid wire derives primarily from the need to approach as closely as possible a "dimensionless grid" when negative grid amplifiers are operated at

frequencies in the upper VHF and in the UHF bands, or are operated as low noise amplifiers in circuits where constant phase relation and stage gain must be maintained over wide frequency bandwidths. In such cases, where tube impedences and electron transit time are to be minimized, use has been made of increasingly small diameters of grid lateral wire. For example, the three Ericsson tubes, 5847/404A, 5842/417A and the 7150, all have frame grids with a lateral wire diameter of 6.5 microns. Soviet tubes which are believed to use grid laterals between 5 and 8 micron in diameter are the 6S15p, the 6Zh11p, the 6Zh22p, and the 6 Zh23p. Soviet tubes with grids probably in the 8-10 micron range are the 6S3p, the 6S17k, the 6S9d, the 6Zh9p, the 6Zh21p, the GI-22 and the GI-25.

We tend to the conclusion that increased Soviet imports of small-diameter wire of the type being discussed stem from increased Soviet requirements for special purpose wideband amplifier tubes related to military requirements, probably for radar application. From the quantities of wire involved, we further conclude that a relatively large new Soviet requirement exists for such tubes.

Sincerely,

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Attachment

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